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ABSTRACT

An attempt was made to increase selected aspects of critical thinking skills of children in a school-age child care program through staff planning of specific program activities using typical activities that would normally occur in these programs. Increased staff members' awareness of their role in facilitating the development of children's critical thinking skills was expected. Three staff members at a site that served a maximum of 45 children daily were trained to use problem-solving techniques to implement their daily program, to model problem-solving behavior and the vocabulary of thinking for the children, to structure activities to develop an understanding of the difference between fact and opinion, and to plan opportunities for the children to use a problem-solving approach. By the end of the practicum, monthly programs planned jointly by staff had been implemented. Children showed an increased ability to generate statements of fact and opinion after viewing children's literature and television advertisements, and they used a problem-solving approach to make decisions about their daily program. Fewer children than expected used the vocabulary of thinking, possibly because many were too young for the terminology. These outcomes indicate that it is possible to infuse critical thinking skills into the daily activities of a school-age child care program through staff planning. Three tables present study findings. Seven appendixes contain a staff survey; monthly plans before, during, and after the intervention; and observation forms for data collection. (Author/SLD)

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Infusing Critical Thinking Skills in a School-Age Child Care Program through Specific Staff Planning

by

Selma Goore

Cluster XLIV

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A Practicum I Report presented to the
Ed.D. Program in Child and Youth Studies
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PRACTICUM APPROVAL SHEET

This practicum took place as described.

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This practicum report was submitted by Selma Goore under the direction of the adviser listed below. It was submitted to the Ed.D. Program in Child and Youth Studies and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Nova University.

Approved:

Sept. 3 1992 _____

Date of Final Approval of Report

June Delano, Ph.D., Adviser

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ABSTRACT

Infusing Critical Thinking Skills into a School-Age Child Care Program through Specific Staff Planning. Goore, Selma, 1992: Practicum Report, Nova University, Ed.D. Program in Child and Youth Studies. Descriptors: Critical Thinking/Extended Day Program/ Infusing Thinking Skills/Problem Solving/School-Age Child Care/ School-Age Child Care Curriculum/ Thinking Skills/Teaching Thinking Skills/Thinking Strategies.

This practicum was designed to increase selected aspects of critical thinking skills of children in a school-age child care program through staff planning of specific program activities. It focused on developing these skills within the informal environment of an after-school child care program using typical activities that normally occur in these programs. It also expected that staff would become more aware of their role in facilitating the development of children's critical thinking skills in a school-age child care setting.

Three staff members at a school-age child care site were trained to use problem solving techniques to implement their daily program, to model problem solving behavior and the vocabulary of thinking for the children; to structure activities to develop understanding of the difference between fact and opinion, and to plan opportunities for the children to use a problem solving approach. Transition time materials focusing on developing thinking skills were available.

By the end of the practicum implementation, monthly programs planned jointly by staff included specifically planned activities focusing on problem solving or distinguishing between fact and opinion activities. Children showed an increase in ability to generate statements of fact and opinion related to their drawings, after experiencing skill development activities using children's literature and television advertisements, and used a problem solving approach to make decisions about their daily program.

The number of children using the vocabulary of thinking was below the expected outcome, attributed to the potential effect of the children who were five- and six-years old and not developmentally ready to use the words.

Outcomes indicate that it is possible to infuse critical thinking skills into the daily activities of the informal environment of a school-age child care program through staff planning of activities to develop specific thinking skills.

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CHAPTER I

INTRODUCTION

Description of Community

Located on a railway line between two major east coast cities, the community comprises two townships that are joined in a regional school district. The location is central to the scientific and research enterprises that line the major transportation arteries and, together with the highly regarded reputation of the school district, attracts a predominantly professional population with multi-cultural backgrounds.

During the past fifteen years, former farm land has been developed into a variety of housing units--individual houses, town houses, condominiums, and apartments, including a fixed percentage to meet the state requirement for low and middle income housing. The availability of a variety of housing options in a pleasant, landscaped environment with sports facilities, access to work opportunities, and a good school system, attracts single-parent households to the community, creating a continuing demand for new housing and additional support services. A Middle School and an

Upper Elementary School have been built within the past four years, and the school district currently is considering building options in light of the continuing growth and development of the community.

Writer's Work Setting and Role

The writer serves as director of community education for the school district. In addition to developing and implementing a basic skills program for adults and enrichment programs for both children and adults, the writer is responsible for the implementation of a before- and after-school child care program for the children of working parents in the district. Now in its tenth year, the program is functioning in the district's three kindergarten to third-grade (K-3) schools and in the upper elementary school housing fourth through sixth grades (4-6), serving 295 children.

This project focuses on one K-3 afternoon school-age child care program that serves a maximum of forty-five children daily, with a staff of three caregivers who develop and implement the daily program under the supervision of the writer. Daily attendance may vary, since parents may choose to enroll their children in the program from one to five days per week, although most children are registered for five days per week.

The school-age child care programs are housed in the multi-purpose rooms and cafeterias of each school, using other school space as needed and as available. The writer's office is located in

the board of education offices, within a five-minute ride to each site. Formal contact is maintained through monthly full staff meetings and monthly lead-teacher meetings, in addition to the frequent informal contacts through at least weekly site visits.

The environment of the school-age child care programs is a balance of structure and informality. Recognizing that these programs are not continuations of the academic day, staff strives to create a warm, caring and safe environment where children can participate in a variety of activities of their own choosing that reflect a developmentally appropriate, enriching curriculum.

CHAPTER II

STUDY OF THE PROBLEM

Problem Description

The children attending the school-age child care program did not use critical thinking skills to solve problems or explore their environment. This lack of critical thinking skills was apparent in their behaviors as they participated in a variety of activities. When participating in planned project, they did not question and explore, but wanted to follow teacher-directed instructions. At the same time, in cases where problems arose among children, they tended to ignore other points of view and rush to solve their problems without consideration of alternatives and best solutions, seeking quick, simple answers. In addition, the children did not use the vocabulary of thinking that would reflect critical thinking skills in their daily activities.

The lack of application of critical thinking skills in the school-age child care setting affected the quality of the children's experiences, the nature of the interaction between child and teacher or caregiver, and the environment of the program. Dependency on others for solutions to problems was reinforced, when children were

not stimulated to reach their own solutions. Anger and hurt resulted from immediate physical confrontation instead of purposeful consideration of alternative ways of solving problems.

The problem that existed in the school-age child care program was that children did not use critical thinking skills where it would be appropriate to do so as they participated in program activities.

Problem Documentation

Evidence to support the existence of this problem was gathered from a survey of the staff, from observations of the program activities, and from study of monthly program planning forms submitted by the staff.

A survey of the school-age child care program staff (see Appendix A) indicated that the majority of children "rarely" or "hardly ever" listened to other points of view when there was disagreement; "rarely" or "sometimes" did not demand simple, quick answers; and "never" or "sometimes" solved problems on their own. Responses of "always" and "usually" to items relating to the staff's intentional inclusion of activities designed to develop thinking skills appeared to point out a discrepancy between the children's lack of thinking behavior, as indicated by staff responses to the previous items, and the teachers' positive perceptions of their own planning of thinking activities. If they had indeed been planning activities to encourage thinking skills, the children were not indicating that they had learned these skills. In observing program activities, children were

not encouraged to use thinking skills--to question the steps involved, to make predictions, or to evaluate procedures. As an example, in an observed baking activity no effort was made to discuss why ingredients were used in a specific order, what was the effect of baking powder in the recipe, or how could the time spent on the project have been used more effectively, perhaps by cleaning up as they went along. In addition, the opportunity was not used to involve appropriate reading and writing skills.

Review of the monthly program plans indicated that the development of thinking skills was not intentionally included in the written plans (see Appendix B), although many activities were suitable to an approach whereby the development of these skills could have been infused throughout the curriculum.

Causative Analysis

Although children during their school day may be taught specific thinking skills as applied to their educational program of instruction, the writer believes that they have not been trained to use critical thinking skills in "other than school" environments. At the same time, teachers (or caregivers) in school-age child care programs have not been trained to focus on the development of thinking skills as an integral part of their program.

As school-age child care staff were not trained to be aware of children's thinking skills as they planned and implemented their

programs, they were not successful in perceiving the inconsistency between the extent to which they thought that they included emphasis on thinking and the children's observed behavior. In addition, it not only takes time to plan a thinking approach, but also time to implement it--to respond to children's questions or to initiate a project in ways that will elicit critical thinking strategies from the children. Teachers tended to accept the quickest way to reach a goal, giving a direct answer to a child's question or giving explicit instructions on how to do a project rather than spending the time to use critical thinking techniques.

Another factor to be considered was the lack of resource materials that address the concept of infusing critical thinking skills in a school-age child care program, putting the responsibility on program planners and implementers to develop their own thinking skills in regard to infusion of these skills in program activities.

Relationship of the Problem to the Literature

A review of the literature indicated that research on school-age child care and on critical thinking skills is sharply skewed--little research has been conducted on school-age child care, but the need for critical thinking skills has been considered extensively. While no research has been found that focuses specifically on critical thinking skills among children in a school-age child care program, many authors indicate the urgent need to

teach these skills to children (J. Brown, 1983; Carr, 1988; Rowland-Dunn, 1989; Paul, Binker and Weil, 1990; Costa, 1991). Additional writings in the literature revealed only a limited number of studies that focused on general cognitive development among children in school-age child care programs, but numerous references on the need to develop critical thinking skills in students in the classroom.

Research on general cognitive development of children in school-age child care programs (also called extended day programs) indicated that an extended day program could have a positive impact on cognitive skills related to the regular elementary curriculum (Mayefsky, 1980); that a program that was not tutorial but a recreational and cultural program could lead to a significant increase in reading and math grades when compared to students not in the program (Entwisle, 1975); and that urban boys and girls in a tutorial extended day program could improve reading and math scores (Sheley, 1984).

Research on developing critical thinking skills emphasized that constantly expanding fields of knowledge demand that students develop higher order thinking skills, including critical thinking, that will enable them to cope with a complex and changing world (McTighe and Schollenberger, 1991; L. Brown, 1986). Nickerson, Perkins, and Smith (1985) earlier had concluded that even only the possibility that thinking skills could be taught means that an effort must be made to teach them. Paul, Binker, and Weil (1991) proposed

that the essential goal of education is to teach students how to think, not what to think, emphasizing that strategies for critical thinking should be integrated throughout the curriculum in the teaching of all subjects. Resnick and Klopfer (1989) also stressed that thinking skills were an integral part of all successful learning, even at the elementary school level.

J. Brown (1983) recognized that children need both direct instruction in thinking strategies and the opportunity to use them if they are to develop thinking skills, while Costa (1981) indicated that teachers must ensure that children are aware that they are learning thinking strategies. The awareness could help in the transfer of these skills to a variety of situations (Bondy, 1984).

Several factors were considered as causes of inadequate critical thinking skills among students. Wasserman (1984) emphasized that teachers' materials are not geared to developing thinking skills, nor are the ways that teachers use their materials. Carr (1988) and Bereiter (1984) noted that separate courses in thinking skills are inadequate to foster development of skills that can be used in problem solving. However, Chance (1986), summarizing a survey of thinking programs for use in classrooms, concluded that the authors of these programs emphasize the need to use a direct approach to teaching thinking through the use of formal program resources. The classroom environment was cited by Vail (1990) and Paul, Binker, and Weil (1990) as an essential element in the success of teaching

thinking skills. The inappropriate classroom environment, where teachers talk too much and do not encourage questioning by students or where students are passive listeners and are not comfortable in taking the risks involved in the process of using thinking strategies, creates obstacles to students' learning thinking skills and applying them to real life problem solving.

CHAPTER III

ANTICIPATED OUTCOMES AND EVALUATION

Goals and Expectations

The following goals and outcomes were projected for this practicum. The goal of this practicum was to increase the critical thinking skills of children in an informal school-age child care care (SACC) program. It was expected that they would be able to use them in appropriate situations in the SACC activities. Also it was hoped that staff would become aware of their role in facilitating the development of the children's critical thinking skills.

Expected Outcomes

1. Thirty-five out of 45 children would be able to define the problem and to develop plans for their solutions in at least three situations that arise in the daily program. Written records would be kept by the writer and the site staff, using the record form in Appendix C.

2. At least 30 children out of 45 children would be able to distinguish between fact and opinion when hearing literature or

advertisements directed to children. The writer would record observations of understanding of the distinction between fact and opinion before implementation and three times during implementation of the practicum to assess increases in this thinking skill.

3. Thirty-five out of 45 children would show the appropriate use of a vocabulary of thinking as they interact with each other in the daily program. Recorded observation by the writer and staff of at least three informal and role playing situations would include use of the terms thinking, why, problem, solution, strategy, point of view, question, what if.

4. The four site staff members would create a thinking environment by cooperatively developing monthly programs that would include at least one weekly activity specifically geared to the development of critical thinking skills. The thinking activities would be noted in the monthly program calendar.

Measurement of Outcomes

As children develop strategies to solve at least three problems that arise in their daily program, written records would be kept by the writer and staff that indicate the nature of the problems, the process used to arrive at solutions, and the proposed solution (see Appendix C).

Both before and during implementation of the practicum,

children's awareness of the difference between fact and opinion would be measured through drawings and group discussions based on literature and advertisements for children's products. Responses to discussions would be recorded and drawings would be studied by the writer to note growth in identifying fact and opinion (see Appendix D).

The appropriate use of the vocabulary of thinking would be recorded by the writer and staff at least three times during observations of the children engaging in interactions in formal problem solving situations and informal role playing situations (see Appendix E).

Monthly programs planned by the site staff would be reviewed by the writer to determine the inclusion of activities geared to the development of critical thinking activities. The implementation of these activities would be recorded by the writer on the form in Appendix F.

CHAPTER IV

SOLUTION STRATEGY

Discussion and Evaluation of Possible Solutions

Children attending the writer's school-age child care program did not use critical thinking skills to solve problems or explore their environment. While it has been noted above (p. 7) that addressing the need to increase the application of critical thinking skills in school-age child care programs has not been investigated directly, a review of the literature revealed that a number of investigators have considered methods of improving thinking skills of students in the school classroom. Focus has been on infusing the teaching of thinking skills throughout the curriculum, in addition to direct teaching of skills, in group situations, based on life experiences.

Beyer (1984), Bereiter (1984), Carr (1988), Paul, Binker, and Weil (1990), and Seiger-Ehrenberg (1991) advocate infusing the teaching of thinking skills throughout the curriculum in an environment that encourages their use, where conditions encourage students to learn by thinking about ideas presented and comparing their own ideas in small group discussions.

Real life problems that occur in the daily lives of children have been emphasized as a successful motivator of children to develop thinking skills (J. Brown, 1983; L. Brown, 1986; Carr, 1988; and Berman, 1991). The approach to the teaching of thinking skills must be based on a developmentally appropriate list of skills (Brown, 1986; Costa, 1991; Ennis, 1991; Paul, 1991). Paul, Binker, and Weil's (1990) guide to remodelling teachers' lesson plans, based on infusing the teaching of thinking skills, lists the dimensions of critical thought in two ways: formally and informally in concrete, illustrative terms. Examples in this text encourage the development of critical thinking skills in children as early as the kindergarten ages, supporting Piaget's call to education to "help the child find coherence and objectivity on the intellectual plane" (DeVries and Kohlberg, 1987, p. 20) by using methods that encourage the child's spontaneous mental activities and where the teacher encourages reasoning and group interactions.

Children's literature has been proposed by DeBono (1983), Poletta (1987), Carr (1988), Paul (1990), and Marzano et al. (1991) as an appropriate resource for developing critical thinking skills in students of all ages. As students are able to project themselves into the realistic drama of stories, plays and poetry, they are most readily able to identify with and think critically about the real-life situations portrayed. Skilled questioning is a technique that can be used to help children develop critical thinking skills. It involves the

teacher modeling the skill and providing the classroom environment where questioning techniques are taught and used in classroom learning activities (Costa, 1981; Sigel, 1984; L. Brown, 1986; Paul, 1990). Not only questioning techniques, but all the thinking behaviors that the teacher wants the children to learn must be modeled with skill and as a normal part of the teacher's behavior (Beyer, 1984; Costa, 1991), a crucial step in creating an environment where children can experiment, explore, observe and discuss the effects of their actions on materials of learning in order to develop their thinking skills (DeVries, 1987).

Several strategies have been proposed as important to the teaching of thinking skills: infusing the teaching throughout the curriculum; creating the environment where children actively interact with the curriculum; using real-life problems as the basis for developing skills; the teacher's modeling the appropriate behavior; the use of literature and questioning techniques.

Staff training must be a part of the solution in the effort to create a thinking environment. Teachers need to be trained to consciously model the desired thinking behaviors, through discussions, role playing, and reading materials, in order to strengthen techniques for providing opportunities for the children's use of critical thinking skills. Materials that reinforce critical thinking skills, such as puzzles, mazes, and brain teasers, can be made available for independent use during the transition times of

the program.

Training in the use of questioning techniques within the informal setting of the program can be accomplished in conjunction with the use of literature which has been cited as an appropriate resource for teaching thinking skills, since reading, drama, and listening to literature already are well established parts of the program. Advertisements from children's television programs and newspapers also can be used to help children learn to distinguish fact from opinion. The school-age child care program presents many situations which can serve as a focus for developing the children's problem-solving skills, such as developing their monthly program of activities, applying game strategies to the construction of new games, establishing guidelines for appropriate behavior and consequences for inappropriate behavior. These situations can be the settings for developing the vocabulary of thinking. Skills can be developed and applied to situations that will develop in the course of implementation of this project.

The environment of the school-age child care program demanded that solutions be viewed from a less formal structure of curriculum than one would find in the formal classroom within a school system. All the solutions noted above could be implemented within a school-age child care program. Indeed, it was proposed that this type of program was a most suitable environment for creating reasoned thinking as a natural way of conducting everyday life.

Description of Selected Solution

The strategies selected involved an integration of solutions offered above. Staff were trained to create a thinking environment through modeling the behaviors they were focusing upon and by consciously planning to include activities that specifically focused on developing thinking skills in their monthly program. Monthly staff meetings and other sessions at the program site were dedicated to developing strategies. Materials that reinforce thinking skills were gathered and made available for use during transition times, in addition to their use as part of the planned program.

Literature appropriate to developmental levels of the five-to eight-year olds in the group was obtained from the school and local libraries.

Real-life problem situations that occurred in the program were used as the basis for developing problem solving skills. In addition,simulations through role playing and drama activities were used to develop problem solving strategies in a group setting. A critical factor was the use of normal program activities as the arena for developing thinking skills. These could include art and science activities, indoor and outdoor games, interactions between children, and projects based on themes that were an on-going element of the program.

The above solutions were feasible in the writer's school-age

child care setting for several reasons. Program policies and staff already recognized that it is appropriate and desirable for the program to focus on cognitive development of the children. Using the normal activities and materials of the program, staff would not require intensive training in using commercial thinking skills products and children would tend to view the thinking projects as a natural part of their program. Unusual expenses would not be incurred and thus the normal program budget could be used to buy books, if they were not available from libraries, in addition to transition time materials and supplies for other activities. It was anticipated that parents of children in this program that was located in a highly educated community would support this project to reinforce their children's thinking skills.

Report of Action Taken

Preparation for implementation of this practicum began with presentation of the concept to members of the writer's advisory council for the school-age child care program. The ten volunteer members of the council--parents of children in the program and community residents--strongly supported the project.

The first staff planning meeting was held with the three teachers who work with the children at the selected child care site. The project was introduced and a schedule of meetings discussed. It was anticipated that it would be difficult to adhere to a rigid

schedule of meetings, due to conflicts in personal schedules of the staff who are part-time employees. All participants agreed to meet as often as the project required, resulting in eight meetings to discuss methods and review results.

At staff meetings in the second and third weeks of the project, the writer discussed thinking skills that would be appropriate in the informality of an after-school child care program, basing discussion on Paul, Binker and Weil's (1990) list of thinking skills. Using discussion, role playing, and written materials, the writer modeled problem-solving techniques with the staff, focusing on how they could be used with the children in the daily program.

Staff selected the first problem for implementation: the process of selecting countries to be included in a Festival of Nations theme for the following month's program. Staff's first response was that they should choose the countries, since they had more resources readily available for some countries than for others. However, after being guided by the writer to look at the selection process as a problem that could be solved by the children, with the expectation that they would be more excited about it if they were involved in the process of choosing the countries, the teachers took on the roles of students trying to solve the problem of selecting countries, gaining experience through participating in the process.

The following week, the process was implemented formally by the teachers in the child care setting, with the writer observing the

activity. After arousing the children's interest in the Festival of Nations theme, the lead teacher posed the question of how they should select the countries to be included, frequently repeating the words problem, strategy, what would happen if. . . , and solutions, and encouraging their use by the students as they gave their suggestions. After stating their problem and brainstorming possible solutions, the children discussed the pros and cons of several solutions and chose one to try: putting all their own names into a bag and being divided into six activity groups as their names were picked from the bag. Each group then would choose a captain (using a problem solving approach to do so), who would spin a globe, landing a finger on a country which would become that group's choice for the festival theme.

Problem solving techniques were used in a planned format when children needed to choose members for an outdoor team sports and in generating ideas for program activities. It was used spontaneously by staff in many informal situations throughout the implementation period, as reported by staff and observed by the writer, as teachers encouraged children to apply a problem solving approach to the settlement of disagreements. In addition, literature was used as an opportunity to have children generate alternative conclusions to stories that they knew, and to act out solutions to a new story before they had heard the ending.

Staff communicated with parents about the thinking skills project through distribution of the monthly program calendar. The

first calendar that incorporated planned specific thinking skills activities was sent home to parents in the fifth week of implementation, showing activities that were planned by the staff. However, since the intention was to teach children how to use these skills in situations that would occur spontaneously in the daily program, only those activities planned by the staff could be included in the calendars at the beginning of each month. For record-keeping purposes, spontaneously occurring events were entered after they occurred. Two other monthly calendars were sent home to parents to indicate thinking skills activities during the implementation period (see Appendix G).

Another step in the solution strategy was a focus on developing the children's skills in distinguishing between fact and opinion. To assess the children's skills in this area at the beginning of the practicum implementation, they were asked to draw a picture of themselves doing a favorite activity. Each child related three facts and three opinions about the drawing to the writer or staff, who recorded the responses. This activity was repeated at the end of the practicum implementation, and changes in number of responses noted. Originally it had been planned to have the children draw a series of pictures that would reflect facts and opinions, but consideration of the varied developmental levels of the children led to a change to the technique that was used.

Children's literature and television advertisements were used to

give children experience in identifying the difference between fact and opinion as they gave examples of each kind of statement in response to materials used by the writer and the staff. The large, exciting pictures in Brother Eagle, Sister Sky (Jeffers, 1991) were used by the writer with the children and Cam Jansen and the Mystery at the Haunted House (Adler, 1992) was used by the staff. Using a tape containing a brief series of television advertisements geared to children's products that was prepared by the writer and an assistant teacher, children identified parts of ads that were factual or were based on the advertiser's opinions.

Throughout the practicum implementation, staff made children aware of the vocabulary of thinking by modeling their own usage and by guiding the children's use of the words problem, solutions, strategies, what if, how, strategies, fact, opinion, I think.

To increase the infusion of thinking skills as an integral part of the daily after-school child care program environment, staff introduced a variety of new materials for transition time activities that were geared to promoting thinking skills, including strategy board games, mazes, tangrams, puzzles.

At the end of the implementation, staff again filled out the survey, developed by the writer, that had been completed prior to implementation to determine the presence of the problem. Changes in responses between before and after implementation were noted.

The period for implementation was three weeks longer than

anticipated due to personal crises in the lives of the staff, from an operation that incapacitated one teacher for a week to illness and death of a family member of a teacher. Since it was desirable to have all the teachers on site when implementing the solutions, specific activities were postponed until all were present. This did not have a critical impact on implementation, since planned activities were discrete and not dependent on a specific span of time.

CHAPTER V

RESULTS, DISCUSSION, AND RECOMMENDATIONS

Results

The problem that existed in the writer's work setting was that children in a school-age child care program administered by the writer did not use critical thinking skills where it would have been appropriate to do so as they participated in their program activities. The goal of this practicum was to infuse the use of critical thinking skills of children in an informal school-age child care program, with the expectation that they would be used in a variety of situations as part of the normal program environment. In addition, it was hoped that staff would become aware of their role in facilitating the development of children's critical thinking skills within the informal setting of a school-age child care program.

Following are the specific objectives designed to achieve these goals and the results of their implementation.

Objective 1. It was anticipated that 35 out of 45 children (77%) in the group would be able to define the problem and participate in achieving solutions through the use of problem solving techniques in

at least three situations that arose within the program's activities. Results are summarized in Table 1. These results include the formal problem solving situations that were facilitated by staff and do not reflect the numerous spontaneous situations that were managed through problem solving techniques. It was observed that in the categories of selecting countries and program planning, the numbers of students participating in problem solving activities approached very closely or exceeded the anticipated response. Only in the area of using problem solving skills to organize teams did the achieved participation (61%) fall below the expected participation (77%).

Table 1

Children Participating in Problem Solving Activities.

Activity	Children Participating	Children Attending	Percentage Achieved	Percentage Expected
Selecting countries	31	41	75	77
Organizing teams	22	37	61	77
Program planning	39	39	100	77

Objective 2. It was anticipated that at least 30 out of 45 children (67%) would be able to distinguish between fact and opinion when using child based resources, such as appropriate literature and

television advertisements. The results of these activities are shown in Table 2. It was observed that in the pre-implementation administration of the drawing activity, where children gave three statements of fact and and three statements of opinion about their drawings, 88% were abe to give statements of fact and 51% were able to give statements of opinion about their drawings. At the end of implementation, 95% were able to give statements of fact about their drawings, while 66% gave statements of opinion. Responses in the literature and television advertisement activities exceeded the anticipated 67% participation level.

Objective 3. It was anticipated that during the three month implementation of the practicum 35 out of 45 children would show appropriate use of a vocabulary of thinking in informal and role playing situations. Usage of key words, such as problem, solutions, strategies, I think, and what if, were noted during observation of the planned thinking skill activities, e.g., the problem solving sessions, the fact/opinion activities, and a role playing activity based on completing a story by solving the problem posed in the narrative. Twenty-two different students were recorded as using these words during the specific observation times.

Objective 4. The three staff members were expected to create a thinking environment by cooperatively developing monthly program calendars that would include at least one weekly activity specifically

Table 2

Children Distinguishing between Fact and Opinion.

Activity	Children Participating	Number of Statements[a]	Percentage Achieved	Percentage Expected
		Statements based on drawings		
Pre-I[b]				
Fact	27	71	88	67
Opinion	27	41	51	67
Post-I[c]				
Fact	33	94	95	67
Opinion	33	65	66	67
		Literature activities		
Brother Sky				
Facts/opinions	37	27	76	67
Cam Jansen				
Facts/opinions	38	29	76	67
		Television advertisements		
Facts/opinions	37	29	80	67

[a]Numbers for picture drawing activity are based on three responses each child.

[b]Pre-Implementation. [c]Post-Implementation.

geared to the development of critical thinking skills. The program calendars developed by staff for April, May, and June, clearly indicate that they did intentionally plan specific activities designed to increase the children's thinking skills (see Appendix G).

In addition, at the end of implementation, the three staff members completed the thinking skills surveys administered to seven staff members before implementation. After weighting the responses to account for the difference in number of participants, Table 3 shows an increase in every item except one (1-F) that remained almost the same.

Discussion

It was noted that in two of the three problem-solving planned activities presented in Table 1, the anticipated level of participation was either very close to expected or exceeded the expected level. The exception was the team organizing situation, where only 61% participated in the problem-solving activity. Review of the lists of participants indicates that the respondents were mostly boys--possibly the result of the boys' greater experience with soccer, basketball, and baseball teams in this community. Another factor could be the age of the children in the group. The five- and six-year olds were usually not as interested in team activities as the seven-and eight-year olds.

Table 3

Pre- and Post-Implementation Thinking Skills Survey Responses

Survey Item	Pre-Implementation Weighted Score (N=7)	Post-Implementation Weighted Score (N=3)
Children		
Figure things out	4.3	6.0
Think one step	4.4	6.0
Do things on own	6.5	8.0
Listen other views	2.2	6.0
Solve own problems	3.9	5.0
Make own decisions	7.3	7.0
Staff		
Plan specific thinking skills activities	3.9	9.0
Provide daily activities to develop skills	5.6	9.0
Respond to questions by guiding children's use of thinking skills	6.9	9.0

In the activities relating to distinguishing between fact and opinion, an increase in the number of children who could make statements of opinion about their drawings after implementation of the solution strategies was noted. While the 66% student participation rate almost reached the 67% expected rate, it still is significantly lower than the 95% achievement rate for statements of facts, after implementation. Comments from the staff and the writer's observations indicated that the youngest children were not as successful in giving statements of opinion about their pictures. It is not apparent whether this was a function of having been exposed only for a brief period in their young lives to this type of thinking, since they were only in kindergarten or first grade, or because they had not passed yet into the developmental stage where they are capable of dealing with concepts.

The number of students who were observed using the vocabulary of thinking (22) was far below the expected outcome (35). Observation of this behavior was limited by the attention of staff to other aspects of the activities where this was being assessed, suggesting that this objective should not have been linked with the problem solving and fact/opinion activities. The informality of the school-age child care program also might have been a factor, if some children associated using thinking words with daytime school work and not with after school activities. Again, the youngest children's lower level of language development probably also contributed to the limited number of children

using the vocabulary of thinking.

One factor that permeates all activities was potential variance among staff. The three staff members participated in all pre-activity meetings for discussion and training where necessary. However, individual differences among the three staff members might have influenced how they assessed responses and recorded observations.

Staff calendars met the practicum objective, showing a purposeful planning of thinking skills activities and including at least one planned activity each week of the practicum implementation. In addition, the weighted responses of the staff on the thinking skills survey showed a clear increase in the staff's perception of the children's use of thinking skills in their daily program activities and an increase in all actions initiated by staff to include thinking skills in the programs. This outcome was supported by interviews with individual staff members.

While only limited aspects of critical thinking have been addressed in this practicum, the outcomes indicate that it is possible to infuse the development of these skills into the daily activities of a school-age child care program. In an informal environment where it would not be appropriate to introduce formal written activities and standardized thinking skills materials, it has been seen that the use of daily occurrences in the lives of children in these programs can be used to help them develop thinking skills, as proposed earlier by J. Brown (1983), L. Brown (1986), Carr (1988), and Berman (1991). The most basic activities that are an integral part of school-age child care programs--literature, sports, children's involvement in developing their

program, art activities--can be the resources used to help children develop thinking skills in this informal environment without any increased expenditures of funds--only time and creative energy of staff to prepare, plan and motivate.

Recommendations

1. It is recommended that staff in all of the school district's school-age child care programs infuse the development of critical thinking skills throughout their program activities.
2. It is recommended that appropriate training should be offered to staff to facilitate their implementation of thinking skills activities in their programs.
3. It is recommended that implementation of thinking skills objectives in a school-age child care program should be geared specifically to developmental levels of the children.

Dissemination

This practicum will be shared with the three additional school-age child care sites in the school district.

Concepts of this practicum, while still in the early germination stage, were shared with school-age child care professionals at the National School-age Child Care Alliance Conference in Denver, November 1991, and at a later stage at the New Jersey School-Age Child Care Coalition Conference in Atlantic City in March, 1992.

Opportunities will be sought to disseminate this practicum through a professional journal.

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APPENDIX A

SURVEY OF SCHOOL-AGE CHILD CARE PROGRAM STAFF

To: EDP Staff

From: Selma Goore

Date: June 12th, 1991

Re: Thinking Skills Survey

We're all aware that enhancing intellectual development is a basic goal of our Extended Day Program curriculum, and we have talked briefly about focusing on critical thinking skills as one way of realizing that goal.

Let's take a look at what we're doing now in our day-to-day program. That will give us a starting point as we work together toward increasing opportunities for our children in the school-age child care environment to develop their thinking skills.

Please fill out the following brief survey and return it to my office by June 21st. Remember, there are no right and wrong responses here -- we're just gathering information so that we can get a clear picture of what's happening now.

1. Children

	sometimes	usually	always
A. Children try to figure things out.			
B. Children don't demand simple, quick answers. They're willing to think one step at a time.			
C. Children find things to do on their own.			
D. Children listen to other points of view when there is disagreement.			
E. Children solve problems on their own.			
F. Children are able to make decisions on their own.			

II. Staff

	sometimes	usually	always
A. 1. When I work on planning the monthly program, I think about including activities that will specifically develop thinking skills.			
2. Give three examples.			
B. 1. I intentionally provide activities daily that will develop children's thinking skills.			
2. Give three examples.			
C. 1. In my responses to children's questions, I encourage them to engage in a thinking process rather than giving a direct answer (excluding emergencies)			
2. Give three examples.			

APPENDIX B

MONTHLY PROGRAM PLANS: PRE-IMPLEMENTATION

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APPENDIX C

FORM FOR OBSERVATIONS

OF PROBLEM-SOLVING PROCESS

APRIL 1991

HAWK SCHOOL EDP - PM

SUN	MON	TUE	WED	THU	FRI	SAT
	1 LONG DAY	2 LONG DAY	3 LONG DAY	4 LONG DAY	5 LONG DAY	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

APPENDIX C

FORM FOR OBSERVATIONS

OF PROBLEM-SOLVING PROCESS

Record of Problem-Solving Process

EDP Site _____ Date _____

Staff Participating _____

Number of Children Participating _____

Time starting: _____ Time ending: _____

Problem initially stated by _____:

_____

_____

What will happen when the problem is solved?

_____

_____

What information is needed to solve the problem?

_____

_____

_____

Ideas for breaking it down into smaller parts:

_____

Possible solutions for each part:

How will we know if this is a good solution?

If solution is applied, how successful was it (trying out and evaluating)?

NOTES:

APPENDIX D

FORM FOR OBSERVATIONS OF

FACT AND OPINION ACTIVITIES

Distinguishing between Fact and Opinion

Children's Drawings

EDP Site _____ Date _____

Before Implementation ___ After Implementation ___
Staff Participating

Number of Children Participating _____

Task I: Instructions to children: Draw a picture that shows you doing something that you really like to do.

Task II: Instructions to staff: Ask each child for three statments of fact and three statements of opinion about the drawing. Record statements on drawing. Collect the drawings.

Pre-implementation: Define fact as what actually happens, what is true. Define opinion as what one believes. Do not discuss at length. Draw pictures. Have children clarify any picture that is not clear.

Post-implementation: Give same definitions. Repeat drawing sample, using same children.

Observe any changes in numbers of fact and opinion statements.

Distinguishing between Fact and Opinion

Record of Discussions

EDP Site _____ Date _____

Before implementation ___ After implementation ____

Staff Participating _____

Number of Children Participating _____

Topic of discussion: _____ Literature _____ Advertisements

Describe activity:

Record of indicators of ability to differentiate between fact and opinion.

_____

_____

_____

_____

_____

APPENDIX E

FORM FOR OBSERVATIONS OF VOCABULARY OF THINKING

Record of Vocabulary of Thinking

EDP Site _____ Date_____

Staff Participating _____

Number of Children Participating _____

Activity _____

Use attendance forms to check off children participating.

Thinking Words Used:

APPENDIX F

MONTHLY PROGRAM PLANS: POST-IMPLEMENTATION

Monthly Program Plans: Post Implementation

EDP Site _____ Date _____

Staff Participating _____

Thinking Activity Scheduled

_____

_____

_____

Thinking Activity Implemented

_____

_____

_____

APPENDIX G

MONTHLY CALENDARS DURING IMPLEMENTATION

April, 1992

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 FRESH FRUIT AND MILK PROBLEM SOLVING HOW DO WE PICK A COUNTRY?	2 TEDDY GRAHAM CRACKERS & APPLESAUCE MILK MAKE A BIG POSTER OF A COUNTRY!	3 VEGGIE TACOS MILK BRAINSTORM COUNTRY CRAFT IDEAS!	4
5	6 YOGURT AND FRUIT MILK COUNTRY CRAFTS	7 GRANOLA MIX MILK COUNTRY CRAFTS	8 SALAD WITH DRESSINGS MILK COUNTRY CRAFTS	9 PIZZA BAGELS MILK FACT VS OPINION FUN! DRAW YOUR FAVORITE ACTIVITY	10 CHEESE AND CRACKERS MILK COUNTRY CRAFTS	11
12	13 TATER TOTS MILK MAKE A POSTCARD OF YOUR COUNTRY!	14 MACARONI AND CHEESE MILK LETS MAKE FOOD FROM AROUND THE WORLD!	15 VEGGIES AND DIP MILK COOKING!!!	16 PIZZA MUFFINS MILK CARNIVAL OF NATIONS!!!	17 NO SCHOOL! NO EDP!	18
19	20 NO SCHOOL!!	21 NO SCHOOL!	22 NO SCHOOL!	23 NO SCHOOL!	24 NO SCHOOL!	25
26	27 SOFT PRETZELS APPLES AND MILK WELCOME BACK!!!	28 NUTRAGRAIN BARS AND MILK SPRING CRAFTS	29 BIRTHDAY TREATS FRUIT AND MILK FACT VS OPINION DAY BOOK FACTS	30 CROISSANTS AND CHEESE MILK HAPPY SPRING!!!		

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May, 1992

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 GRANOLA BAR APPLES AND MILK HAPPY MAY!	2
3	4 PRETZELS & DIP AND MILK WHO IS YOUR SUNSHINE?	5 CHEESE AND CRACKERS AND MILK SUNSHINE B BOARD	6 PASTA AND SAUCE MILK FINISH SUNSHINES	7 NACHOS AND CHEESE MILK PROBLEM SOLVING HOW CAN WE MAKE FAIR TEAMS?	8 CRACKERS APPLESAUCE AND MILK MAKE MOTHERS DAY CARDS	9
10	11 PBJ CRACKER SNACKS MILK PROBLEM SOLVING HOW DO WE PLAN A TALENT SHOW?	12 VEGGIES AND DIP MILK TALENT SHOW PREPARATIONS	13 SNACK MIX MILK TALENT SHOW PREPARATIONS	14 PIZZA BAGELS MILK FACT VS OPINION THINKING- FACTS IN COMMERCIALS	15 MACARONI AND CHEESE MILK HAPPY FRIDAY!	16
17	18 PRETZELS AND FRUIT MILK DAY 1 TALENT SHOW	19 SALAD BAR MILK DAY 2 TALENT SHOW	20 GRILLED CHEESE AND MILK TALENT SHOW DAY 3	21 YOGURT MILK AWARDS FOR TALENT SHOW	22 OUTRAGRAIN BARS AND MILK MOVIE DAY! WHAT WOULD YOU LIKE TO SEE?	23
24	25 NO SCHOOL! HAPPY MEMORIAL DAY!	26 VEGGIE TACOS MILK MY PLAN FOR THE SUMMER	27 BREADSTICKS TOMATO SAUCE WHAT DID I ACCOMPLISH THIS YEAR?	28 FRUIT SALAD MILK PROBLEM SOLVING HOW WOULD YOU CROSS THE RIVER?	29 BIRTHDAY TREATS! EDP VACAY AWARDS	30
31						

DUTCH NECK EDP

D.N. EDP PHONE # IS 275-6655

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